

ABSTRACT

The invention relates to a method and apparatus for strengthening glass. A method according to one aspect of the invention strengthens glass by applying potassium ions to the surface of a glass article with the surface being at least the annealing point temperature of the glass and then keeping the temperature of the glass between the strain point temperature of the glass and about 150°C below the strain point temperature for at least about five minutes to facilitate a more efficient ion-exchange reaction. In one embodiment, the glass articles may be dipped in a salt bath to apply the ions. In an alternative embodiment, the glass articles may be sprayed with molten potassium salt to apply the ions. As a result of the methods of the invention, the treated glass articles may be strengthened by having an increased surface stress or may contain less glass with no change in strength as compared to the same untreated glass article.